

SURVEILLANCE WEEK 35 (August 30, 2009– September 5, 2009)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from August 30, 2009-September 5, 2009, (Week 35). **All data are for week 35 unless otherwise specified. Death and hospitalization information among pandemic (H1N1) 2009 (or abbreviated as pH1N1) confirmed cases is current as of September 10, 2009.** Data extraction and analysis for this issue of the Bulletin occurred on September 10, 2009.

In order to enable our readers to better assess influenza activity in Ontario, we have combined various sources of information in the following table.

Assessment of Influenza Activity in Ontario

Measure	Assessment of measure compared to previous week (Lower, Similar, Higher)	Reasoning behind assessment
Laboratory Confirmed Cases	Lower	7 total influenza cases (3 pH1N1) in week 35 compared to 12 reported in week 34 (10 pH1N1)*. The percent positivity of laboratory tests for pH1N1 was <5%, which is much lower than the peak in June (>40%).
Influenza A Outbreaks	Similar	No new institutional influenza outbreaks were reported during week 35.
Influenza Activity Levels Reported by Health Units	Similar	Health units reported either 'sporadic' or no influenza activity for the current reporting week.
ILI Consultation Rate reported by Sentinel Physicians	Higher	The overall ILI consultation rate increased from 13.96/1,000 patient visits to 23.96/1,000 patient visits.
Hospitalizations Among Lab Confirmed Cases of pandemic (H1N1) 2009 virus	Lower	Fewer hospitalized cases were reported from September 4 to September 9 as compared to August 26 to September 3
Deaths Among Lab Confirmed Cases of pandemic (H1N1) 2009virus	Similar	No new deaths were reported from September 3 to September 9.
OVERALL ASSESSMENT	Influenza activity in Ontario is <i>similar</i> compared to the previous week. However, ILI activity has increased.	Many of the measures indicate that influenza activity in week 35 were similar to activity in week 34. However, since ILI consultation rates are one of the early indicators of ILI activity, the rise in ILI consultation rate may indicate early increasing pH1N1 activity in Ontario, increased activity of other respiratory viruses, or increased health seeking behaviour among the general public.

*Counts from previous weeks may be updated and therefore may not match reports in earlier bulletins

Overall, influenza activity in Ontario during week 35, 2009, was **similar compared to** week 34, 2009. Ontario health units reported 7 new confirmed cases of influenza through the integrated Public Health Information System (iPHIS). This count includes 3 laboratory confirmed cases of pH1N1, which is fewer than the 10 cases reported in week 34. During week 35, new laboratory confirmed cases of pH1N1 continued to be seen across the province, with a case being reported in North East, South West and Central West regions. No new institutional influenza outbreaks were reported. For week 35, the majority of health regions reported 'sporadic' level activity. The rate of influenza-like illness (ILI) in patients seen by sentinel physicians was above the range that is expected for this time of the year based on the average ILI rate reported in week 35 for the past 3 years.

For a definition of ILI activity levels and links to websites providing current influenza information from other sources, please refer to the attached Appendix- I. If you would like to provide feedback on the Bulletin, please contact Christine D'Souza (christine.dsouza1@ontario.ca, 416-212-5323), Michael Whelan (michael.whelan@ontario.ca, 416-327-9174) or Anne-Luise Winter (anne-luise.winter@ontario.ca, 416-327-7301).

Table 1: Summary of confirmed influenza cases and institutional influenza outbreaks by health region (Week 35, 2009)

Confirmed influenza cases*†	HEALTH REGION							TOTAL
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Pandemic (H1N1) 2009	0	1	0	0	0	1	1	3
Influenza A (Other Subtypes/Not Subtyped)	0	0	0	1	2	0	1	4
Influenza B	0	0	0	0	0	0	0	0
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	0	1	0	1	2	1	2	7
Institutional outbreaks of pandemic (H1N1) 2009 ‡	0	0	0	0	0	0	0	0
Institutional outbreaks of Influenza (Other Subtypes/Not Subtyped)‡	0	0	0	0	0	0	0	0

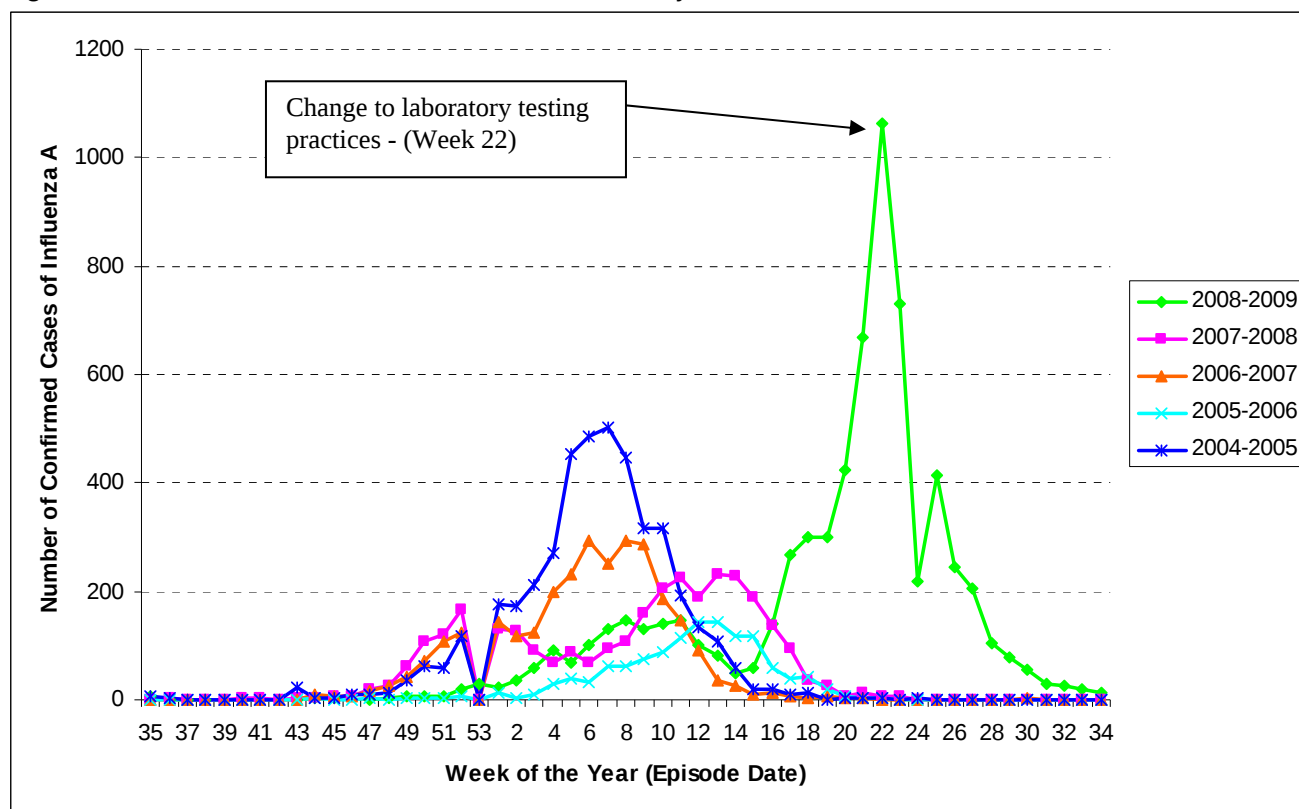
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [10/09/2009].

* Includes reports of confirmed influenza through iPHIS, as well as cases in institutional outbreaks, with dates of onset for the first case in the surveillance period.

‡ Confirmed outbreaks in institutions with onset date of symptoms during the surveillance period.

As seen in Figure 1, the total number of influenza A positive cases occurring between weeks 17 and 22, for the current season, is higher than the seasonal peak that was seen in late-February to mid-March (weeks 8 – 11). A change in laboratory testing patterns is reflected in week 23, as the population eligible for testing was drastically reduced, resulting in a decline in the number of laboratory confirmed cases of influenza A. Beginning June 21, 2009 (week 25) health units began reporting weekly aggregate counts of pH1N1. Aggregate reports are based on the date the health unit was informed of the pH1N1 subtype as opposed to the reported symptom onset date for the case.

Figure 1: All confirmed cases of Influenza A in Ontario by week, 2004-2009[†]



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Table 2: Confirmed cases of pandemic (H1N1) 2009 virus by health unit & health region, reported during Week 35[†], 2008-09 and cumulative* confirmed cases between September 1, 2008 – September 5, 2009

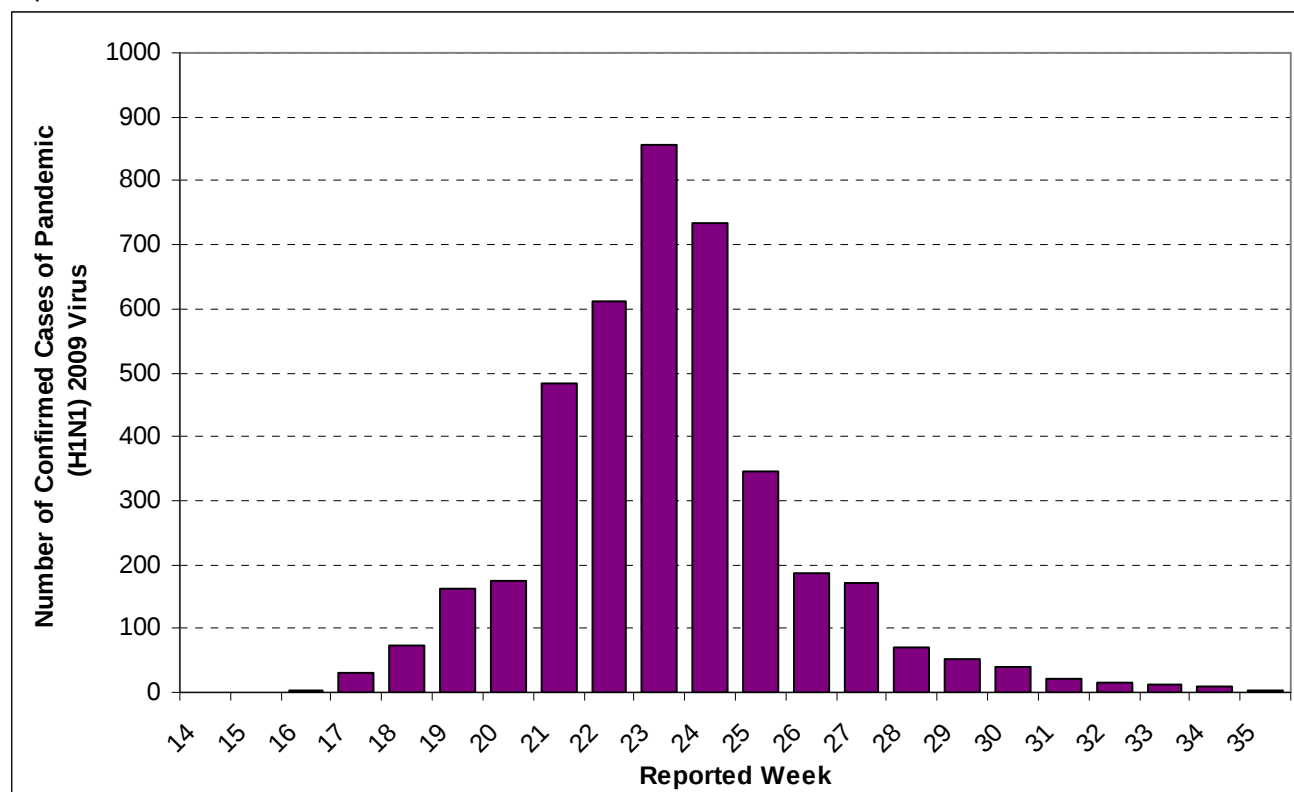
Region	Health Unit	Confirmed Influenza	
		Pandemic (H1N1) 2009 for WK 35	Pandemic (H1N1) 2009 (Total)
North West	Northwestern	0	74
	Thunder Bay District	0	10
	TOTAL NORTH WEST	0	84
North East	Algoma	1	7
	North Bay Parry Sound District	0	7
	Porcupine	0	4
	Sudbury & District	0	24
	Timiskaming	0	0
	TOTAL NORTH EAST	1	42
Eastern	City of Ottawa	0	361
	Eastern Ontario	0	24
	Hastings & Prince Edward Counties	0	4
	Kingston, Frontenac, Lennox & Addington	0	15
	Leeds, Grenville And Lanark District	0	10
	Renfrew County And District	0	12
	TOTAL EASTERN	0	426
Central East	Durham Region	0	118
	Haliburton, Kawartha, Pine Ridge	0	13
	Peel Region	0	697
	Peterborough County-City	0	4
	Simcoe Muskoka District	0	63
	York Region	0	496
	TOTAL CENTRAL EAST	0	1,391
Toronto	Toronto	0	1,578
	TOTAL TORONTO	0	1,578
South West	Chatham-Kent	0	6
	Elgin-St. Thomas	0	0
	Grey Bruce	0	8
	Huron County	0	2
	Lambton County	0	1
	Middlesex-London	0	27
	Oxford County	0	3
	Perth District	0	6
	Windsor-Essex County	1	50
	TOTAL SOUTHWEST	1	103
Central West	Brant County	0	8
	City Of Hamilton	0	123
	Haldimand-Norfolk	0	6
	Halton Region	0	213
	Niagara Region	0	20
	Waterloo Region	0	37
	Wellington-Dufferin-Guelph	1	27
	TOTAL CENTRAL WEST	1	434
	Out of Province	0	6
	TOTAL ONTARIO	3	4,064

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

[†] Reported date corresponds to the date pandemic (H1N1) 2009 was reported to the health unit

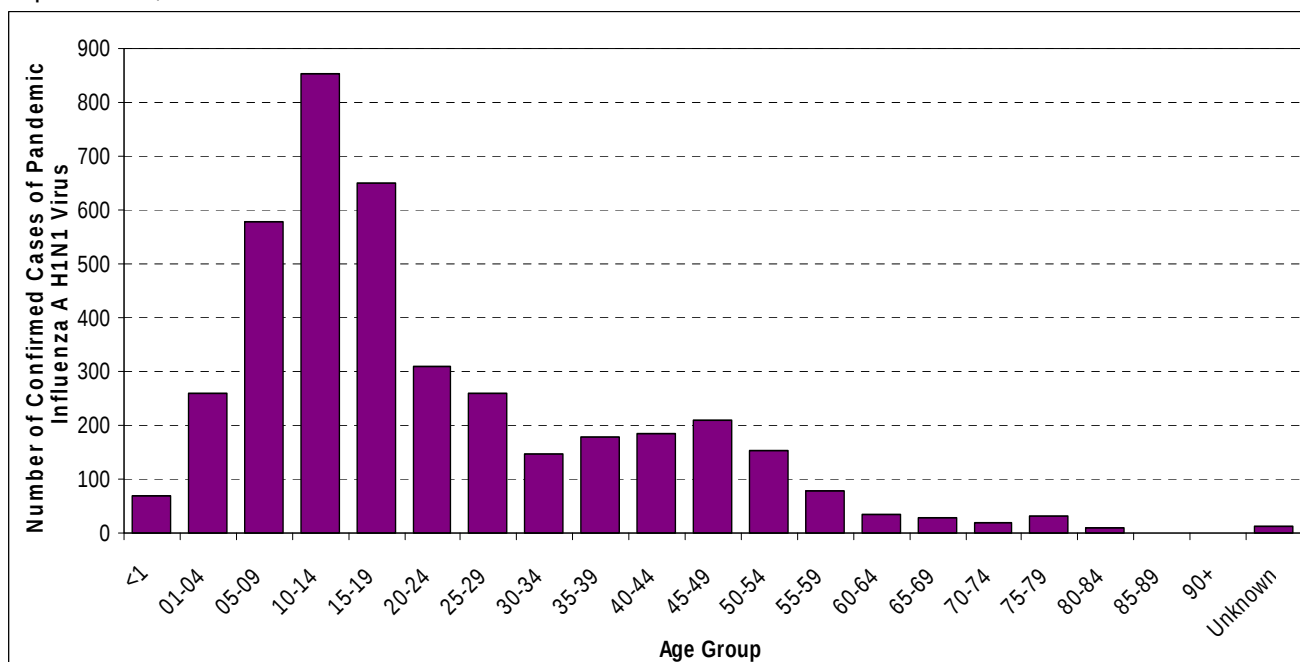
* Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

Figure 2: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by week between April 13 and September 5, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

Figure 3: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by age group between April 13 and September 5, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

Table 3: Confirmed cases of influenza by health unit & health region, excluding laboratory confirmed pandemic (H1N1) 2009, with an episode date[†] during Week 35, 2008-09

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	0	0	0	0
	Thunder Bay District	0	0	0	0
	TOTAL NORTH WEST	0	0	0	0
North East	Algoma	0	0	0	0
	North Bay Parry Sound District	0	0	0	0
	Porcupine	0	0	0	0
	Sudbury & District	0	0	0	0
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	0	0	0	0
Eastern	City of Ottawa	0	0	0	0
	Eastern Ontario	0	0	0	0
	Hastings & Prince Edward Counties	0	0	0	0
	Kingston, Frontenac, Lennox & Addington	0	0	0	0
	Leeds, Grenville And Lanark District	0	0	0	0
	Renfrew County And District	0	0	0	0
	TOTAL EASTERN	0	0	0	0
Central East	Durham Region	0	0	0	0
	Haliburton, Kawartha, Pine Ridge	0	0	0	0
	Peel Region	0	0	0	0
	Peterborough County-City	1	0	0	1
	Simcoe Muskoka District	0	0	0	0
	York Region	0	0	0	0
	TOTAL CENTRAL EAST	1	0	0	1
Toronto	Toronto	2	0	0	2
	TOTAL TORONTO	2	0	0	2
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	0	0	0	0
	Huron County	0	0	0	0
	Lambton County	0	0	0	0
	Middlesex-London	0	0	0	0
	Oxford County	0	0	0	0
	Perth District	0	0	0	0
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	0	0	0	0
Central West	Brant County	0	0	0	0
	City Of Hamilton	1	0	0	1
	Haldimand-Norfolk	0	0	0	0
	Halton Region	0	0	0	0
	Niagara Region	0	0	0	0
	Waterloo Region	0	0	0	0
	Wellington-Dufferin-Guelph	0	0	0	0
	TOTAL CENTRAL WEST	1	0	0	1
	TOTAL ONTARIO	4	0	0	4

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Table 4: Cumulative* confirmed cases of influenza by health unit & health region, excluding laboratory confirmed pandemic (H1N1) 2009, with an episode date[†] between September 1, 2008 – September 5, 2009

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	6	0	7	13
	Thunder Bay District	6	0	7	13
	TOTAL NORTH WEST	12	0	14	26
North East	Algoma	5	0	10	15
	North Bay Parry Sound District	17	0	74	91
	Porcupine	20	0	30	50
	Sudbury & District	15	0	7	22
	Timiskaming	6	0	5	11
	TOTAL NORTH EAST	63	0	126	189
Eastern	City Of Ottawa	128	2	56	186
	Eastern Ontario	15	0	39	54
	Hastings & Prince Edward Counties	9	0	19	28
	Kingston, Frontenac, Lennox & Addington	33	0	32	65
	Leeds, Grenville And Lanark District	22	0	22	44
	Renfrew County And District	9	0	10	19
	TOTAL EASTERN	216	2	178	396
Central East	Durham Region	106	1	61	168
	Haliburton, Kawartha, Pine Ridge	73	0	49	122
	Peel Region	395	0	145	540
	Peterborough County-City	29	0	10	39
	Simcoe Muskoka District	80	0	77	157
	York Region	187	0	45	232
	TOTAL CENTRAL EAST	870	1	387	1,258
Toronto	Toronto	779	3	247	1,029
	TOTAL TORONTO	779	3	247	1,029
South West	Chatham-Kent	7	0	4	11
	Elgin-St. Thomas	2	0	2	4
	Grey Bruce	22	1	54	77
	Huron County	15	0	33	48
	Lambton County	5	0	6	11
	Middlesex-London	64	0	8	72
	Oxford County	15	0	10	25
	Perth District	29	0	12	41
	Windsor-Essex County	27	0	34	61
	TOTAL SOUTHWEST	186	1	163	350
Central West	Brant County	21	0	19	40
	City Of Hamilton	139	0	97	236
	Haldimand-Norfolk	11	0	11	22
	Halton Region	122	0	60	182
	Niagara Region	79	0	56	135
	Waterloo Region	129	0	85	214
	Wellington-Dufferin-Guelph	63	0	41	104
	TOTAL CENTRAL WEST	564	0	369	933
	TOTAL ONTARIO	2,690	7	1,484	4,181

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009].

* Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

NOTE: Data presented on deaths and hospitalizations includes cases reported up to September 9, 2009.

Deaths among pandemic (H1N1) 2009 Virus cases, April 13 – September 9, 2009

Twenty-three deaths have been reported among confirmed cases. Almost all of these fatalities (83%) were hospitalized prior to death. Among the reported fatalities, males (11) accounted for slightly fewer deaths than females (12). Fatal cases range in age from 6 to 81 years of age; the median age is 56 years and the average age is 54 years. Of the fatal cases, 78% (18/23) occurred in individuals over the age of 40 years. Among cases that have died, the most frequently reported symptoms are fever (20), cough (17), and shortness of breath (17); no symptoms were reported for one case. The symptom onset dates of the fatal cases range from May 6 to August 5, 2009.

Among the 23 confirmed cases that have died, 20 (87%) had underlying chronic medical conditions reported, compared to 66% (239/370) of all hospitalized cases.

Hospitalizations among pandemic (H1N1) 2009 Virus cases, April 13 – September 9, 2009

Three hundred and seventy confirmed cases of pandemic (H1N1) 2009 have been hospitalized for more than 24 hours to date. Of these, 350 cases have been discharged. The average and median length of hospital stay were 9 days and 4 days, respectively, with lengths of stay ranging from 1 to 80 days. Among cases that were discharged from hospital, 89% (312/350) had a length of stay of at least 2 days. There are currently 20 confirmed cases that are reported as still being hospitalized.

Among cases that are currently or have previously been hospitalized, a number of underlying medical conditions have been reported, including but not limited to diabetes, cardiovascular conditions, renal conditions and pulmonary conditions. Of the 20 cases still hospitalized, a total of 13 were placed on a ventilator and/or were admitted to ICU.

Table 5. Hospitalizations among confirmed cases of pandemic (H1N1) 2009 in Ontario, April 13 – September 3, 2009

Hospitalization Status	Ventilator and/or ICU	Not in ICU and not on ventilator	Number of cases hospitalized to date
Number Currently Hospitalized	13 (65%)	7 (35%)	20 (100%)
Number Hospitalized and Discharged	63 (18%)	287 (82%)	350 (100%)
Total Hospitalized to date	76 (20%)	294 (80%)	370 (100%)

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [09/09/2009]

Table 6 below shows the number of hospitalizations and deaths among confirmed pH1N1 cases by age group and corresponding population based incidence rates. The highest rate of hospitalization occurred in individuals under the age of 1. The highest mortality rates occurred in the 50-64 and 65+ age groups.

Table 6. Incidence of hospitalization and death due to pandemic H1N1 2009 in Ontario, April 13 – September 9, 2009

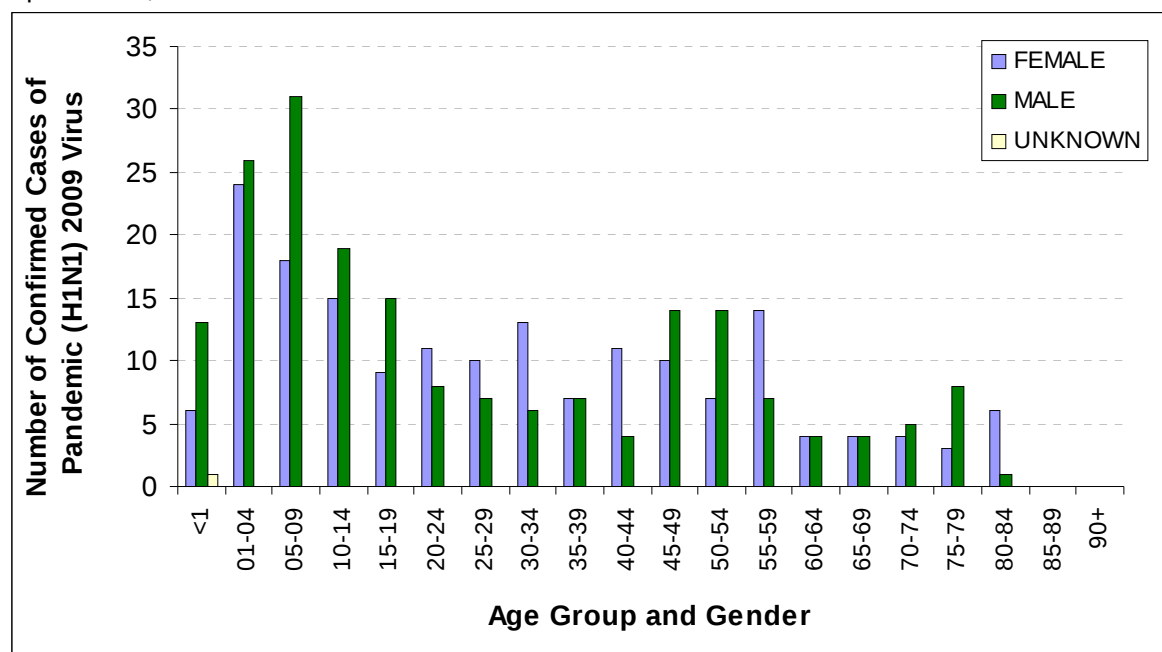
Age Group	Hospitalizations	Rate/100,000	Deaths	Rate/100,000
<1	20	14.93	0	0.00
1-4	50	9.15	0	0.00
5-19	107	4.43	3	0.12
20-49	108	1.90	4	0.07
50-64	50	2.08	9	0.37
65+	35	2.03	7	0.41
TOTAL	370	2.86	23	0.18

Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [09/09/2009]

Source (incidence): Ontario population projections for 2008: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [12/02/2009]

Figure 4 shows the age and sex distribution of the 370 cases that were hospitalized for more than 24 hours. Confirmed cases that have been hospitalized range in age from <1 to 84 years of age; the median age is 21 years and the average age is 28 years.

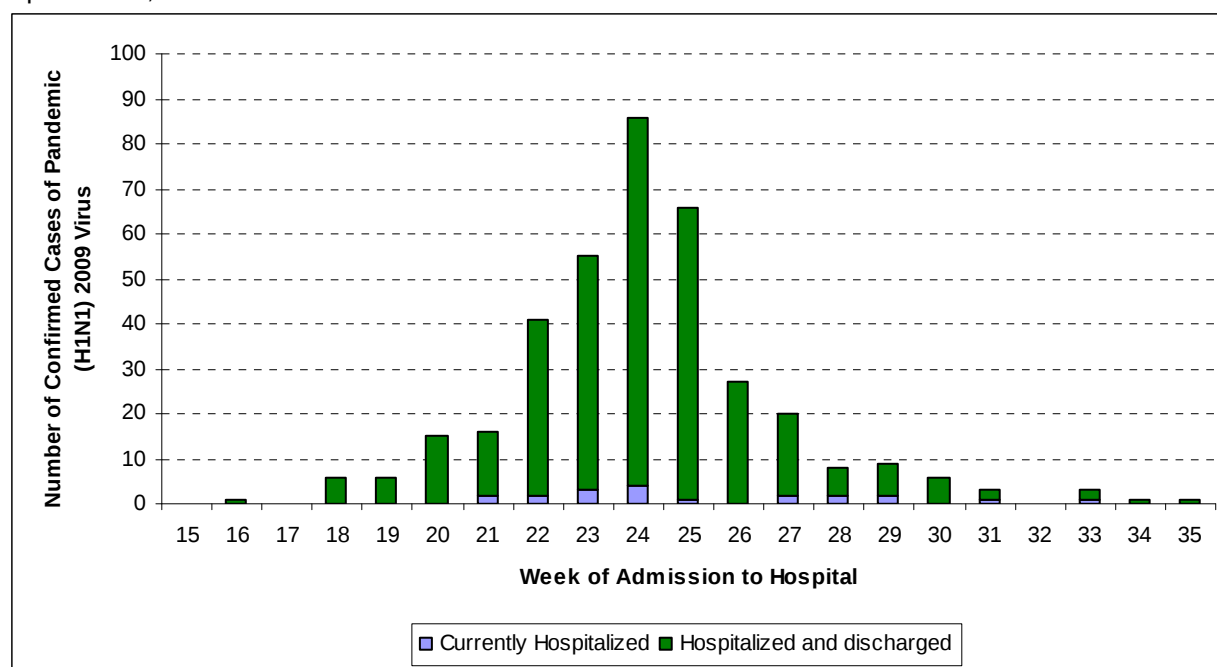
Figure 4: Hospitalized cases of pandemic (H1N1) 2009 in Ontario by age group and gender, April 13 to September 9, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [09/09/2009] **Note:** Gender is unknown for 1 case.

The hospital admission dates for hospitalized cases ranged from April 20 to August 30, 2009 (Figure 5). Case counts from weeks 34 onwards should be interpreted with caution due to lags in case identification, laboratory testing, and data entry.

Figure 5: Hospitalized cases of pandemic (H1N1) 2009 by hospital admission date in Ontario, April 13 – September 9, 2009*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [09/09/2009] *For Week 33-34, decreased counts may be attributed in part to reporting delays.

Influenza Subtype(s):

During week 35, a total of 3758 isolates were received by the Public Health Agency of Canada, with 89 testing positive for influenza A and none positive for influenza B. 46 of the reported influenza A isolates were from Alberta (51.7%), 19 were from Quebec (21.4%), 11 were from Ontario (12.4%), and 8 were from Saskatchewan (9.0%).*

(Antigenic Characterization and Antiviral Resistance data are Current as of August 28, 2009)

Antigenic Characterization (National) – Seasonal Influenza:

Since September 1, 2008, National Microbiology Laboratory (NML) has antigenically characterized 1002 seasonal human influenza viruses (172 influenza A/H3N2, 260 influenza A/H1N1 and 570 B viruses) that were received from Canadian provincial and hospital laboratories and 296 pandemic influenza A (H1N1) viruses. All 172 influenza A/H3N2 isolates characterized were antigenically similar to A/Brisbane/10/07, which is the influenza A (H3N2) component recommended for the 2008-09 influenza vaccine. All 260 influenza A/H1N1 isolates characterized were antigenically similar to A/Brisbane/59/2007, which is the influenza A (H1N1) component recommended for the 2008-09 influenza vaccine.

Influenza B viruses currently circulating can be divided into two antigenically distinct lineages represented by B/Yamagata/16/88 and B/Victoria/2/87 viruses. Of the 570 influenza B isolates characterized, 11 were antigenically similar to B/Florida/4/2006, which is the B component recommended for the 2008-09 influenza vaccine and belongs to B/Yamagata lineage. 379 B isolates were characterized as B/Malaysia/2506/04-like and 180 were characterized as B/Brisbane/60/08-like, which belong to the Victoria lineage. B/Brisbane/60/08 is the recommended B component for the 2009-2010 influenza vaccine.

Antigenic Characterization - Pandemic (H1N1) 2009:

NML has antigenically characterized 296 pandemic influenza A (H1N1) isolates by HI assay. The results reveal that these viruses are antigenically related to A/California/7/2009 (H1N1), which is the variant reference virus selected by WHO as a potential candidate for pandemic (H1N1) vaccine. Antigenic characterization also indicates that these viruses are antigenically and genetically unrelated to seasonal influenza A (H1N1) viruses, which suggests that there is little or no protection to be expected from vaccination with seasonal influenza vaccine.

The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 44 influenza A/California/07/2009-like.

Antigenic Characterization (Provincial) – Seasonal Influenza:

The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 79 influenza A/Brisbane/59/2007(H1N1)-like, 21 influenza A (H3N2)/A/Brisbane/10/2007-like, 40 B/Brisbane/60/2008-like, 6 influenza B/Florida/4/2006-like, and 177 B/Malaysia/2506/2004-like.†

Antiviral Resistance (National) – Seasonal Influenza:

Since the start of the season, the NML has tested 715 influenza A isolates (319 H1N1 and 396 H3N2) for amantadine resistance. All of the H1N1 isolates were sensitive; however all of the H3N2 isolates were resistant to amantadine. The NML has also tested 1086 influenza isolates (319 A/H1N1, 194 A/H3N2 & 573 B) for oseltamivir (Tamiflu) resistance. All of the A/H3N2 and B isolates were sensitive; however 318 of the A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation (resistance = 99.7% or 318/319). One H1N1 isolate was sensitive to oseltamivir.

All 1024 influenza isolates (256 A/H1N1, 190 A/H3N2 & 578 B) tested for zanamivir resistance to date were sensitive to zanamivir.†

The WHO recommends that the vaccines to be used in the 2009-2010 season (northern hemisphere) contain the following: an A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Brisbane/60/2008-like virus. <http://www.who.int/csr/disease/influenza/recommendations2009_10north/en/index.html>

Antiviral Resistance – Pandemic (H1N1) 2009:

359 pandemic influenza A (H1N1) isolates have been tested for resistance to amantadine by sequencing. The testing results showed that all 359 isolates were resistant to amantadine. 511 pandemic influenza A (H1N1) isolates have been tested for resistance to oseltamivir by sequencing; all were sensitive. 267 of the pH1N1 were tested for zanamivir resistance. The testing results showed that all 267 isolates were sensitive to zanamivir.

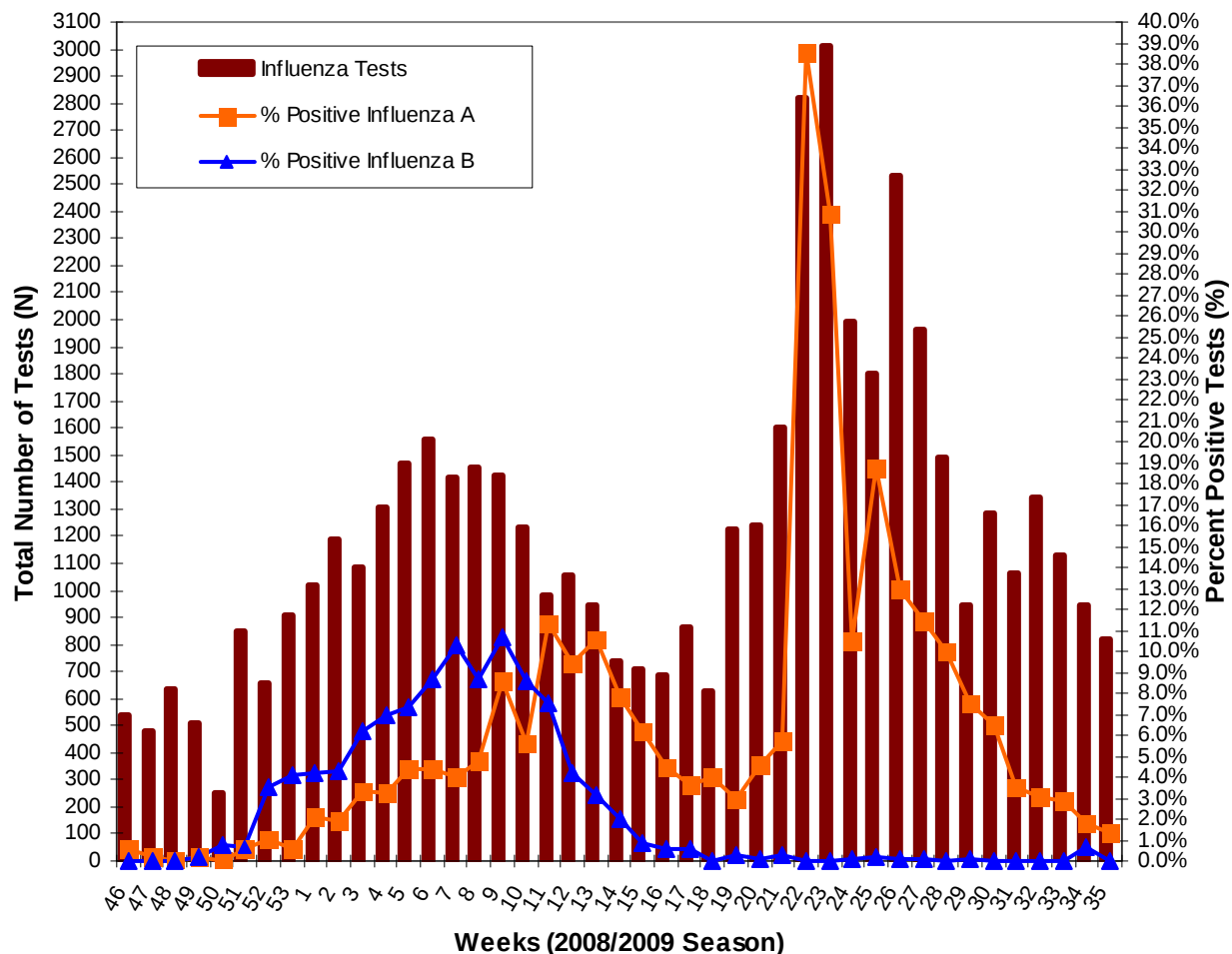
Antiviral Resistance (Provincial) – Seasonal Influenza:

All 83 A/H3N2 isolates tested were resistant to amantadine in Ontario. All of the 100 H1N1 isolates tested were sensitive to amantadine. Ninety-nine of the 100 tested A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation, one H1N1 isolate was sensitive.†

* These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada and do not include data from late reports to PHAC: Week 35, 2009

† These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 34, 2009.

Figure 6: Total number of influenza tests performed and percent of positive tests in Ontario reported to the Centre for Immunization and Respiratory Infectious Diseases (CIRID), by report week*.

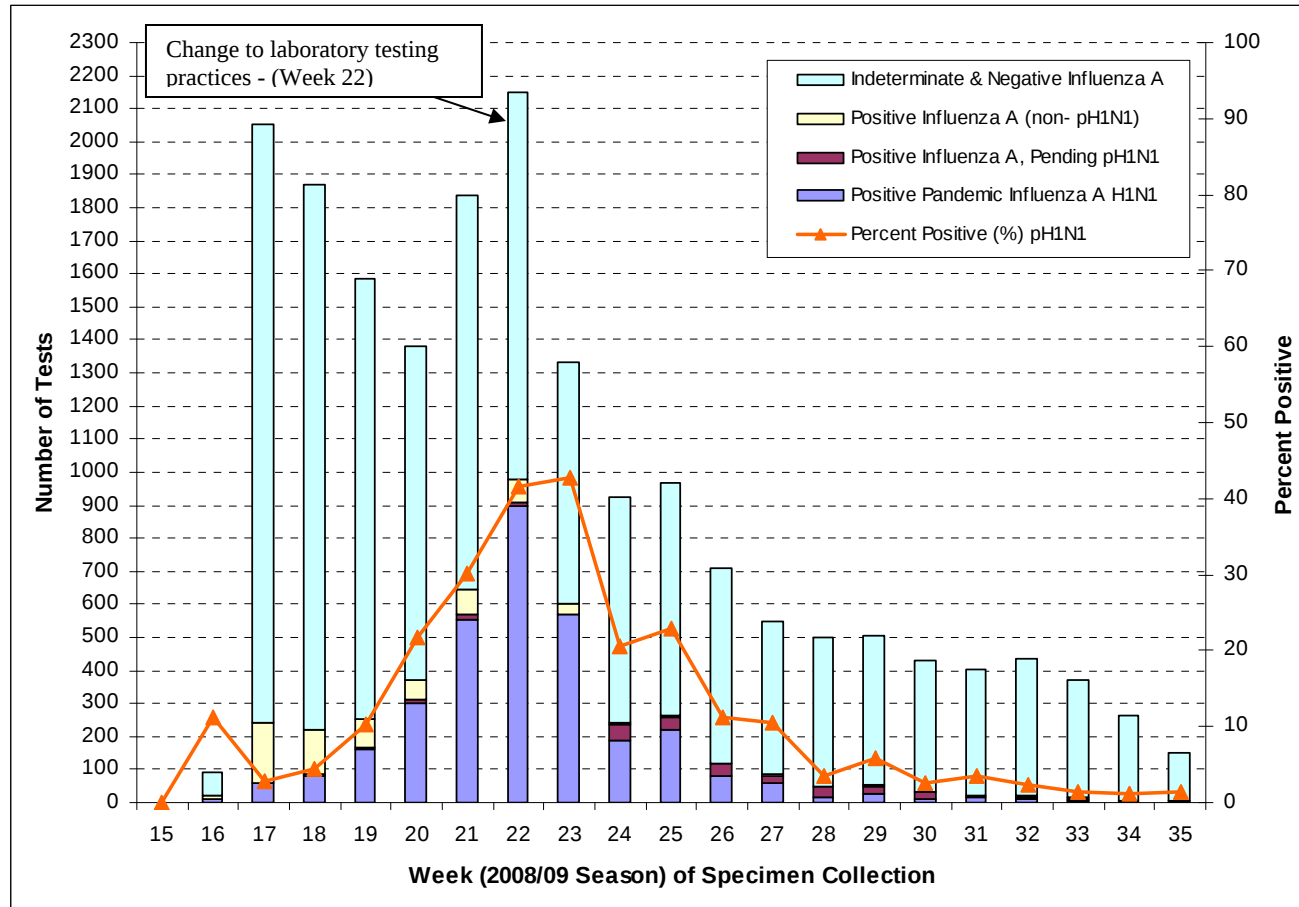


Source: Public Health Agency of Canada

* Total numbers reported include late reports; therefore totals may not be equal to the sum of the weekly numbers.

Note: Cumulative numbers for season to date are available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>

Figure 6a: Total number of influenza tests performed and percent of positive tests in Ontario conducted by the Ontario Agency for Health Protection and Promotion Laboratory – Toronto, by specimen collection week April 12 – September 5, 2009



Source: Adapted from Table 1 in the "OAHPP Laboratory Pandemic H1N1 Surveillance Report"; Wednesday September 9, 2009

Table 7a: Institutional respiratory infection outbreaks in Ontario: new outbreaks* in Week 35 and total outbreaks for the season**

Institutional Respiratory Infection Outbreaks		
New Outbreaks*	N	% (of outbreaks)
Influenza A (All subtypes)	0	0.0
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	0	0.0
RSV	0	0.0
Other organisms	0	0.0
No organism identified	2	100.0
TOTAL	2	100.0
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A	74	10.3
Influenza B	18	2.5
Influenza A and B	1	0.1
Parainfluenza (All types)	49	6.8
RSV	52	7.2
Combined Outbreaks [†]	0	0.0
Other organisms	81	11.3
No organism identified	443	61.7
TOTAL	718	100.0
Types of Institutions – All Outbreaks **	N	% (of outbreaks)
Long-Term Care Homes	471	65.6
Hospitals	29	4.0
Retirement Homes	58	8.1
Other	3	0.4
Unknown	157	21.9
TOTAL	718	100.0
	N	--
New Outbreaks – Pandemic (H1N1) 2009*	0	--
Total pH1N1 2009 Infection Outbreaks of the Season to date**	4	--
	N	% (of outbreaks)
Types of Institutions (pH1N1 Outbreaks) **	N	% (of outbreaks)
Long-Term Care Homes	2	50.0
Hospitals	2	50.0
Retirement Homes	0	0.0
Other	0	0.0
Unknown	0	0.0
TOTAL	4	100.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009]

* New outbreaks are those in which the date of onset of illness in the first case occurred and recorded through iPHIS in the current surveillance period; i.e. August 30, 2009 – September 5, 2009

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 35

[†] Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.)

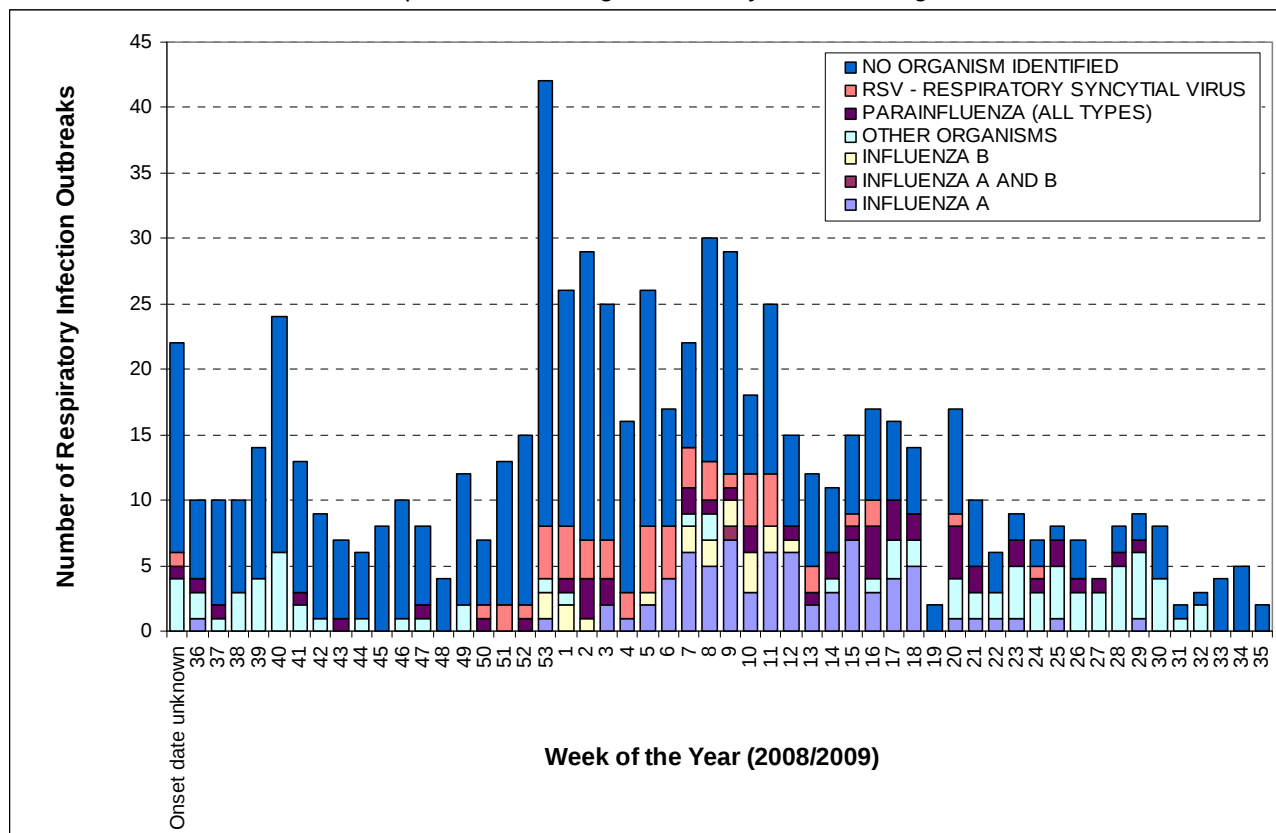
Table 7b: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Cases – All Outbreaks	N	% (of total cases)
Residents	8765	74.6
Patients	424	3.6
Staff	2565	21.8
Total Cases	11754	100.0
Deaths		% (of cases per role)
Residents	205	2.3
Patients	11	2.6
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	313	3.6
Patients	34	8.0
Staff	8	0.3
Hospitalizations		% (of cases per role)
Residents	395	4.5
Staff	4	0.2
Outbreak Related Cases – All Influenza Outbreaks	N	% (of total cases)
Residents	1123	71.2
Patients	50	3.2
Staff	405	25.7
Total Cases	1578	100.0
Deaths		% (of cases per role)
Residents	44	3.9
Patients	1	2.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	69	6.1
Patients	4	0.4
Staff	5	1.2
Hospitalizations		% (of cases per role)
Residents	89	7.
Staff	0	0.0
Outbreak Related Cases – Pandemic (H1N1) 2009 Outbreaks	N	% (of total cases)
Residents	12	35.3
Patients	6	17.6
Staff	16	47.1
Total Cases	34	100.0
Deaths		% (of cases per role)
Residents	0	0.0
Patients	1	16.7
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	1	8.3
Patients	1	16.7
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	2	16.7
Staff	0	0.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [03/09/2009]

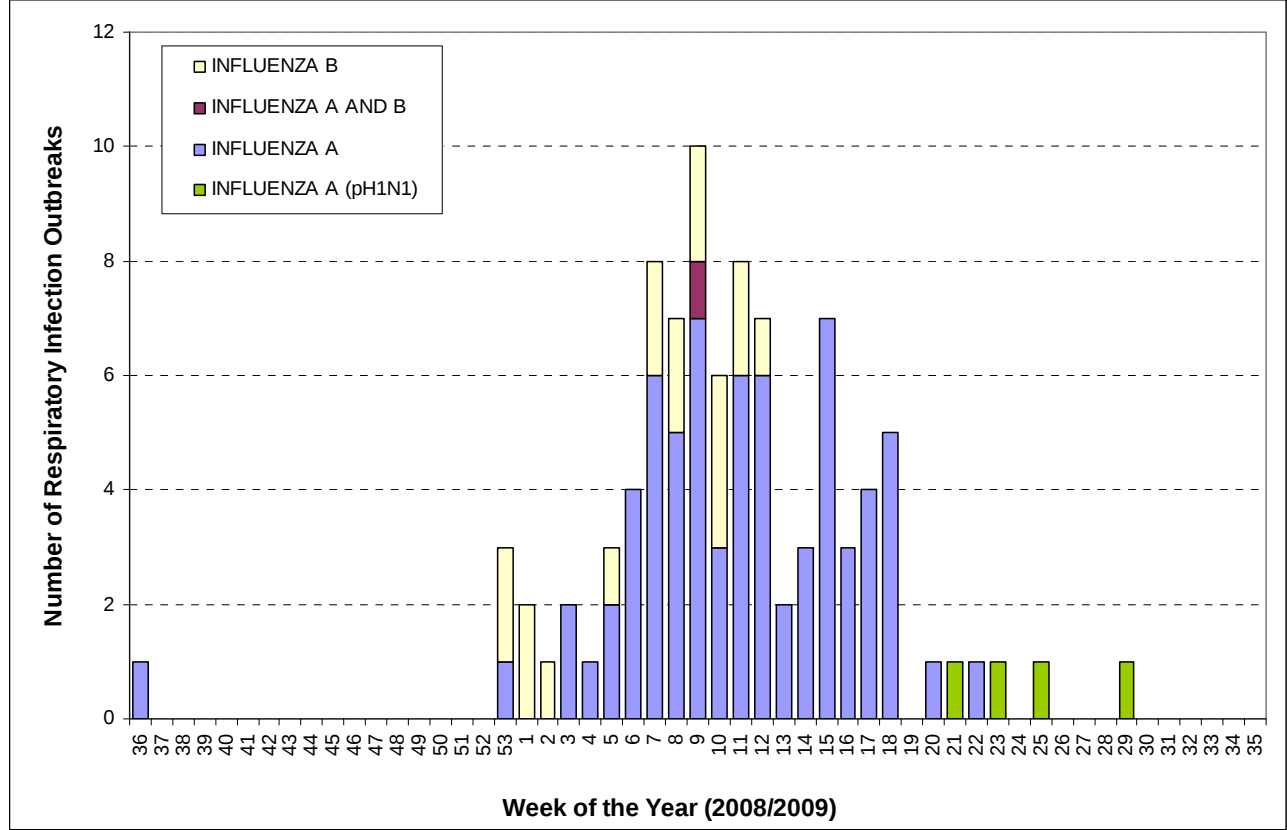
* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to and including Week 35

Figure 8: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 35 by causative organism



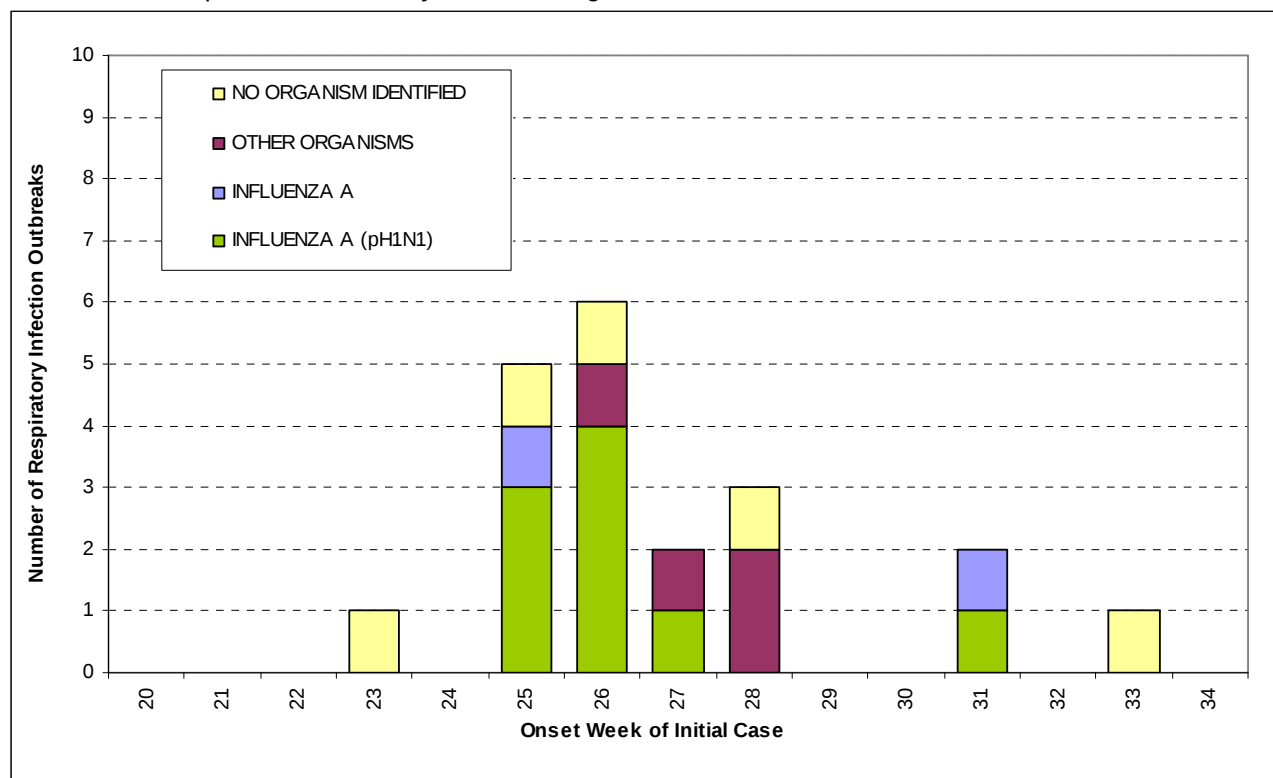
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009]

Figure 9: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 35 by subtype



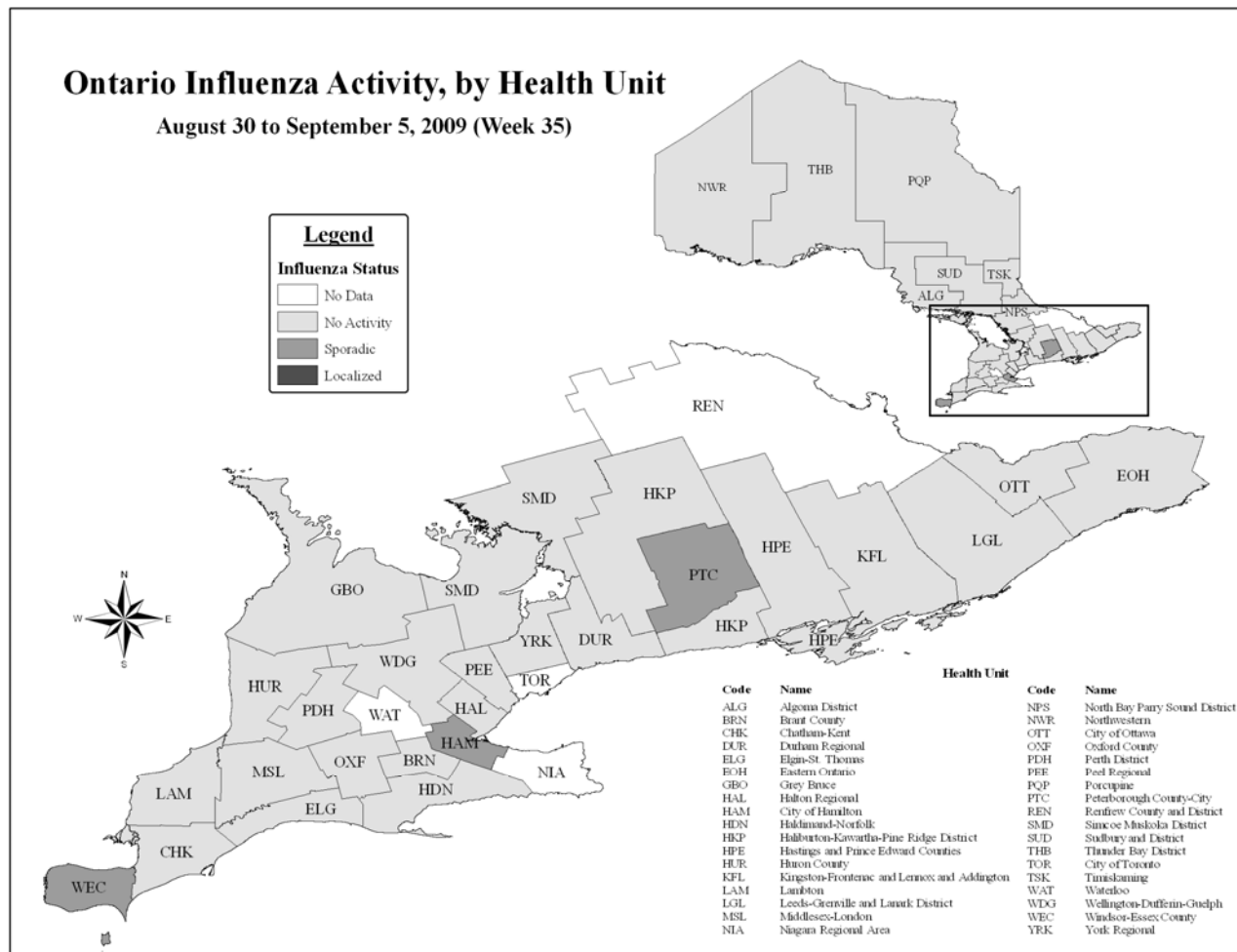
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009]

Figure 10: Outbreaks in Ontario summer camps by onset of illness in the first case: Total Outbreaks from June 1 – September 2, 2009 by causative organism



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [03/09/2009]

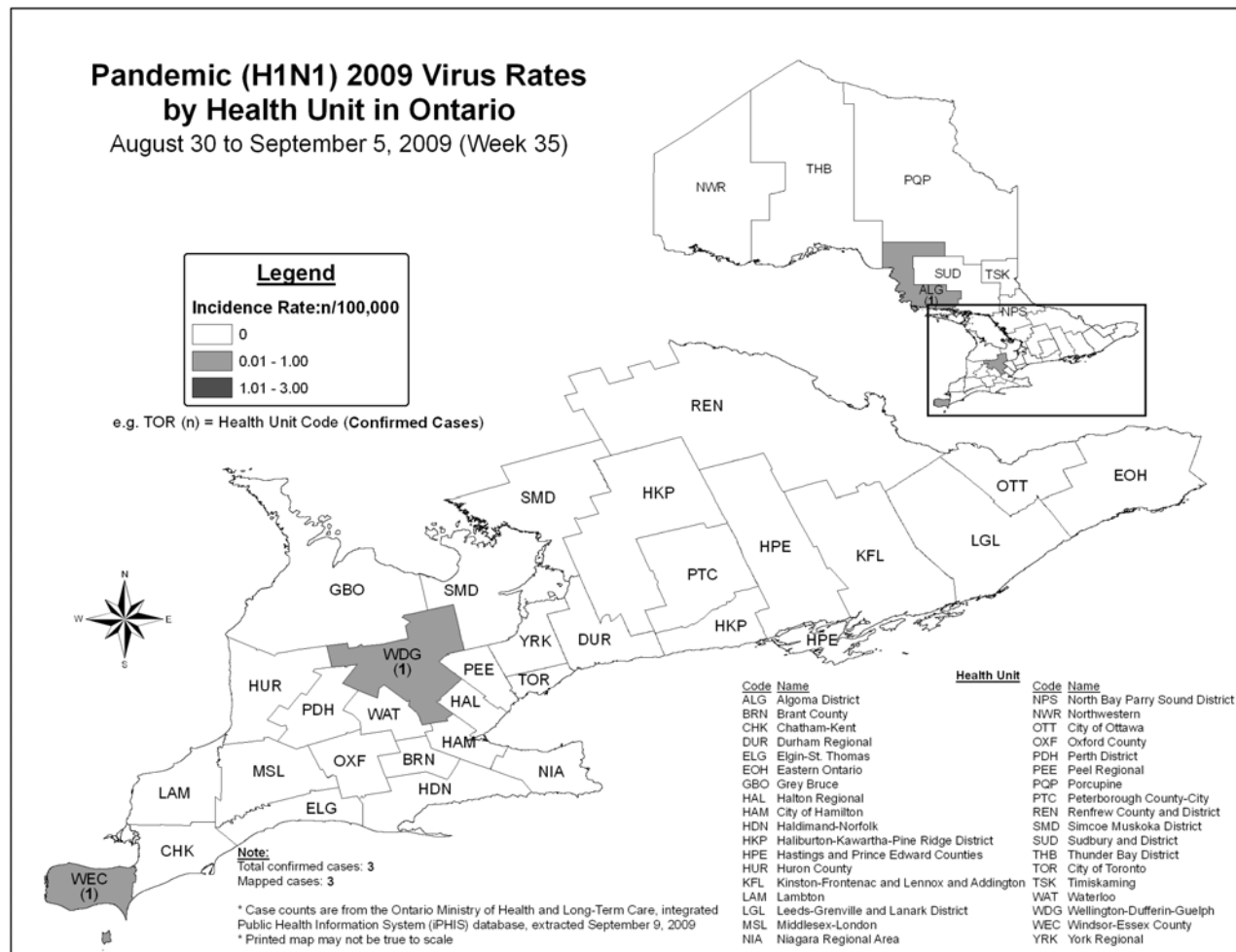
Figure 11: Influenza Activity* levels in Ontario by health unit for Week 35, 2009



SOURCE: MOHLTC [Provincial Influenza Activity Report (Appendix C) Database]

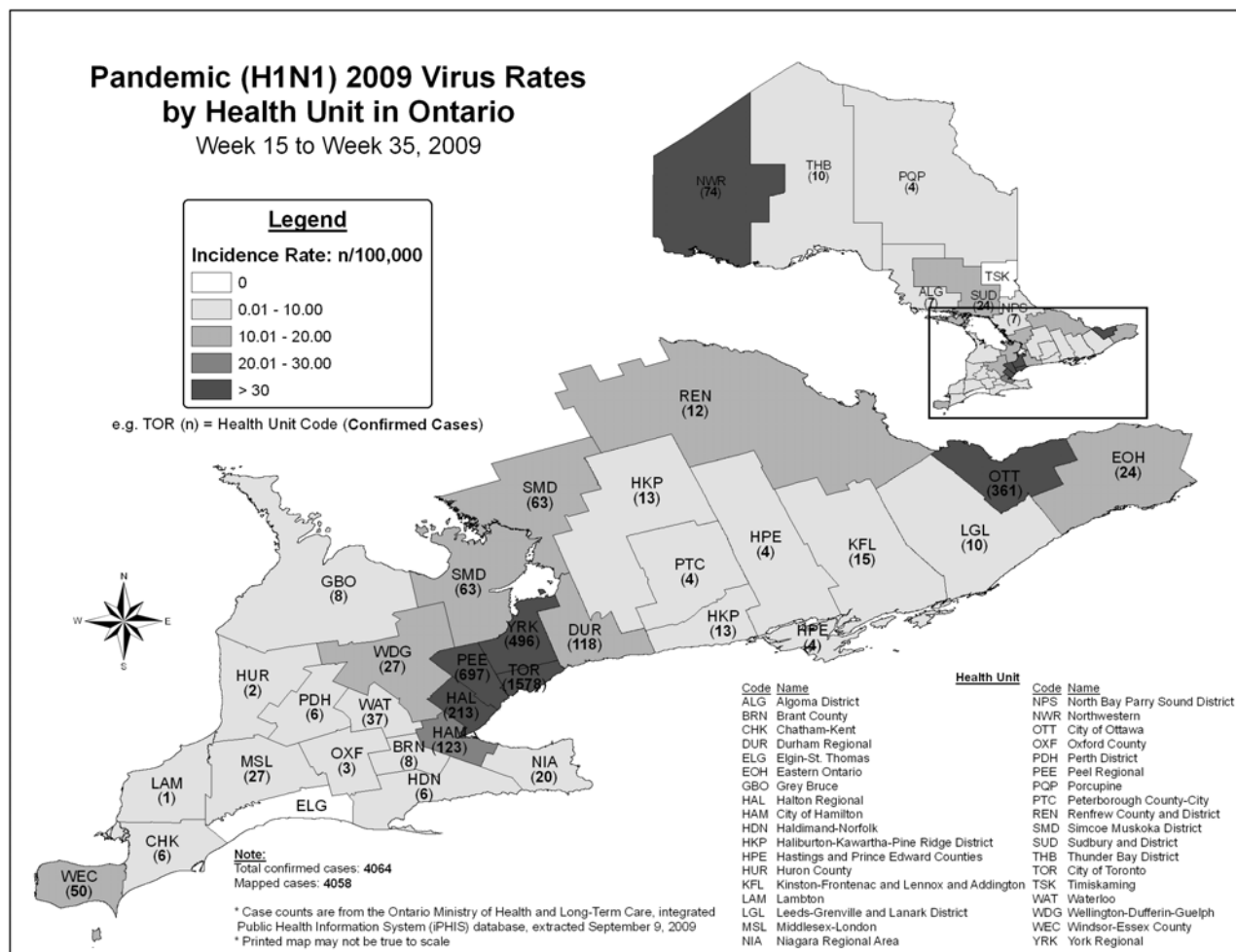
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. Please refer to detailed definitions for the 2008-2009 season included in the Appendix-1]

Figure 12: Pandemic (H1N1) 2009 Virus incidence rates and counts in Ontario by health unit for Week 35, 2009



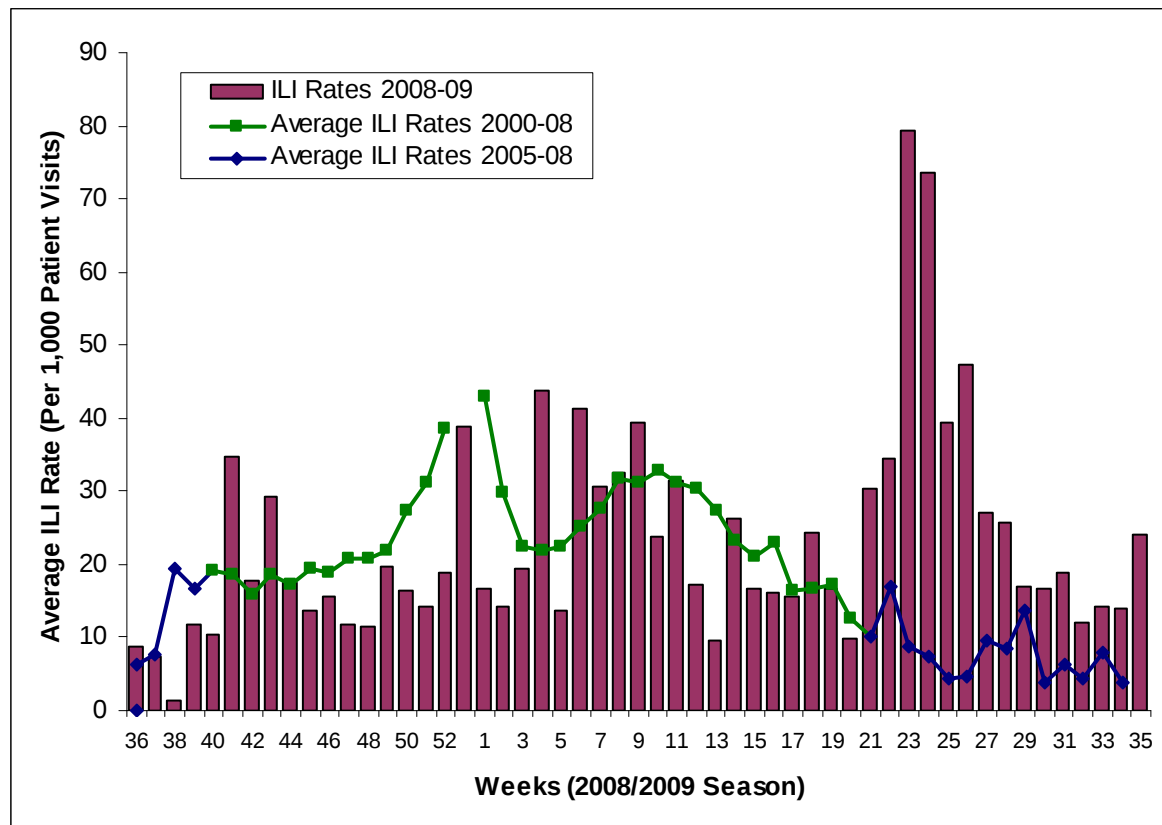
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009]

Figure 13: Pandemic (H1N1) 2009 Virus cumulative incidence rates and counts in Ontario by health unit, Week 15 – 35 (April 12 – September 5, 2009)



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [09/09/2009]

Figure 14: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario in 2008- 2009 season, by report week, compared to Ontario average[†] (1999/2000 to 2007/08 seasons).



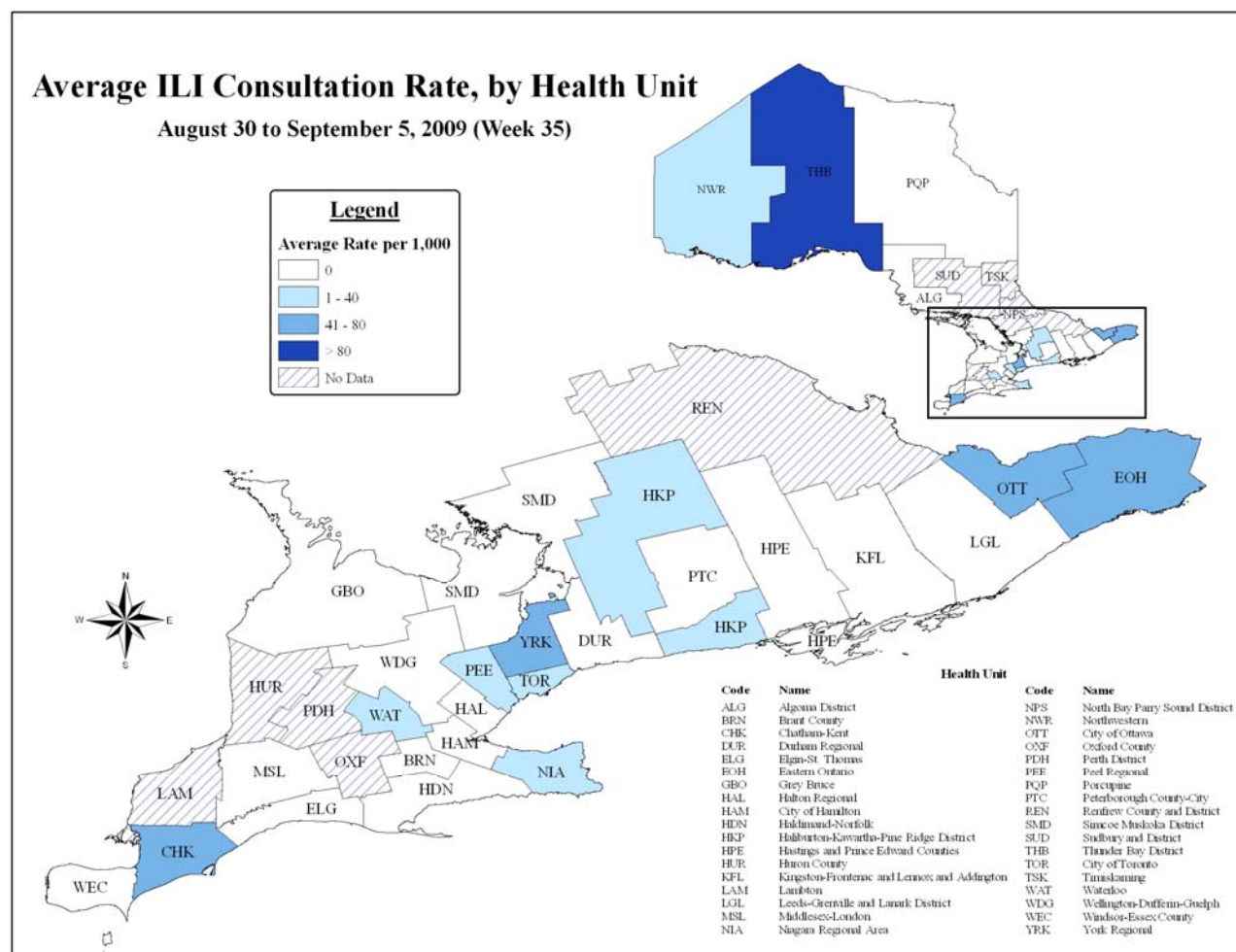
Source: Public Health Agency of Canada

* Sentinel physician information is reported to Public Health Agency of Canada, 104 sentinels reported this week.

[†] No data available for mean rate in previous years for weeks 21 to 39 (1999-2000 through 2004-2005 seasons). During weeks 20-39, 2002-2003/2004-2005 seasons, ILI is reported once every two weeks, on even weeks only.

Since Week 23, 2009, the number of sentinel physicians has increased, which might affect ILI rate starting from week 23.

Figure 15: Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 35.



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 97 sentinels reported this week.

Note: The small numbers of sentinel physicians reporting at the local level can make the ILI rates unstable. Please interpret these data correspondingly.

Table 8: Average influenza-like illness consultation rate (per 1,000 patient visits) by age group as reported by sentinel physicians* in Ontario, for Week 35.

Age Category	0 – 4	5 – 19	20 – 64	65 +	Unknown	TOTAL
ILI Sum	8	8	37	4	0	57
ILI Consultation Rate (per 1,000 patient visits)	50.00	30.77	27.21	6.68	0.00	23.96

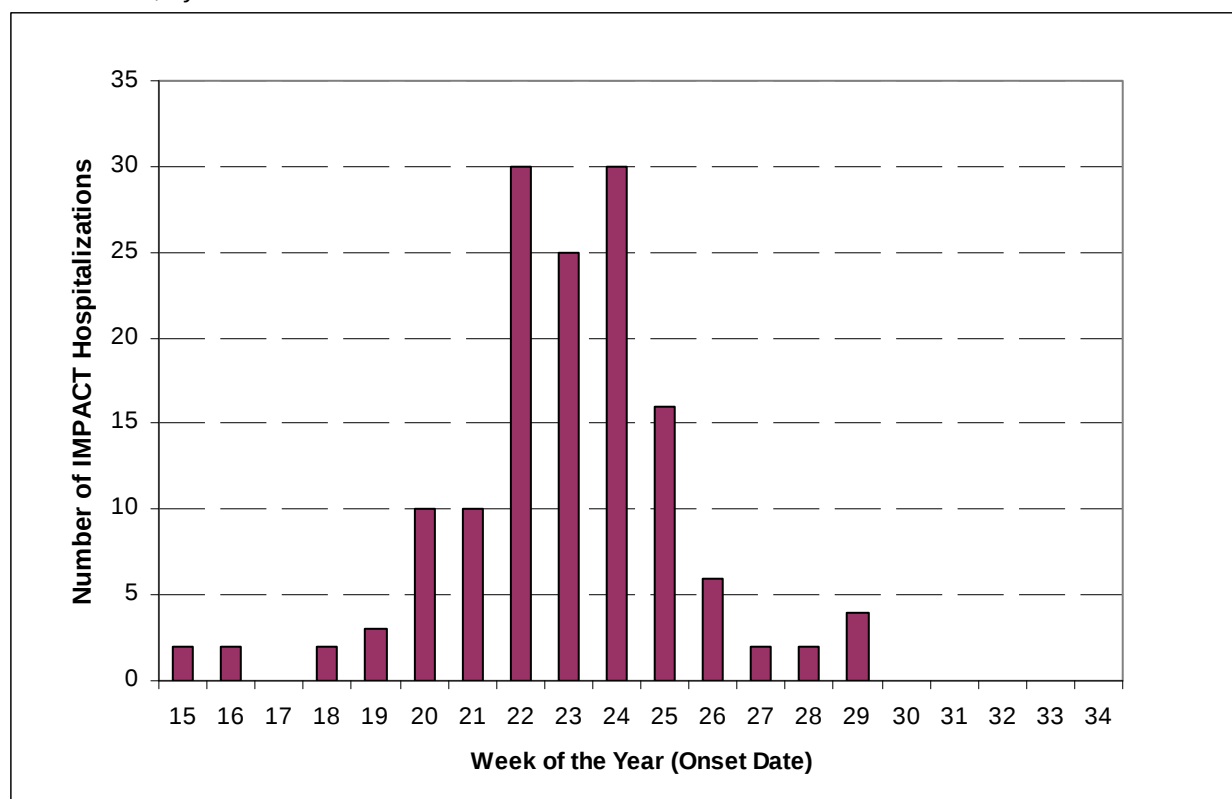
Source: Public Health Agency of Canada

* Sentinel physician information is reported to the Public Health Agency of Canada; 97 sentinels reported this week.

Immunization Monitoring Program ACTive (IMPACT) is a paediatric hospital-based national active surveillance network for adverse events following immunization and selected infectious diseases in children, including influenza-associated pediatric hospitalizations and complements the [Canadian Adverse Event Following Immunization Surveillance System](#) (CAEFISS). It involves 12 Canadian centres, two of which are in Ontario (Children's Hospital of Eastern Ontario in Ottawa and the Hospital for Sick Children, Toronto).

Reports of adverse events following immunization are reported to the Vaccine Safety Unit at the Immunization Division of the Public Health Agency of Canada. Note that the number of IMPACT hospitalizations presented in this week's bulletin has been updated with the latest data received from PHAC.

Figure 16: Number of influenza related hospitalizations in Ontario reported through IMPACT in the 2008-2009 season, by onset date.



Source: Public Health Agency of Canada

***Note:** The number of IMPACT hospitalizations presented reflect the latest data received at the time of publication, thus lower numbers of cases reported in recent weeks may be attributed in part to reporting delays.

FURTHER INFORMATION

1. Ontario Ministry of Health and Long-Term Care
Previous issues of the *Ontario Influenza Bulletin* can be accessed at:
http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_08/flubul_mn.html
2. Public Health Agency of Canada
Issues of FluWatch can be accessed at:
www.phac-aspc.gc.ca/fluwatch/
3. United States Centers for Disease Control and Prevention
<http://www.cdc.gov/flu/weekly/fluactivity.htm>
4. European Influenza Surveillance Scheme
http://www.eiss.org/cgi-files/bulletin_v2.cgi

INFORMATION ABOUT H1N1 INFLUENZA (HUMAN SWINE INFLUENZA)

1. CDC (Human swine flu investigation)
<http://www.cdc.gov/swineflu/investigation.htm>
2. PHAC (Human swine flu investigation)
http://www.phac-aspc.gc.ca/alert-alerte/swine_200904-eng.php
3. WHO Swine Flu general info
<http://www.who.int/csr/disease/swineflu/en/index.html>
4. Ontario Ministry of Health (Important Health Notices)
<http://www.health.gov.on.ca/english/providers/program/emu/ihn.html>

INFORMATION ABOUT AVIAN INFLUENZA

For latest information on the status of avian influenza worldwide please use the following link:

Public Health Agency of Canada
<http://www.phac-aspc.gc.ca/h5n1/index.html>

Influenza Surveillance Weeks 2009-2010 and date of submission of Appendix C

WEEKS	START	END	Appendix C Submission to MOHLTC
WK36	6-Sep-09	12-Sep-09	15-Sep-09
WK37	13-Sep-09	19-Sep-09	22-Sep-09
WK38	20-Sep-09	26-Sep-09	29-Sep-09
WK39	27-Sep-09	3-Oct-09	6-Oct-09
WK40	4-Oct-09	10-Oct-09	13-Oct-09
WK41	11-Oct-09	17-Oct-09	20-Oct-09
WK42	18-Oct-09	24-Oct-09	27-Oct-09
WK43	25-Oct-09	31-Oct-09	3-Nov-09
WK44	1-Nov-09	7-Nov-09	10-Nov-09
WK45	8-Nov-09	14-Nov-09	17-Nov-09
WK46	15-Nov-09	21-Nov-09	24-Nov-09
WK47	22-Nov-09	28-Nov-09	1-Dec-09
WK48	29-Nov-09	5-Dec-09	8-Dec-09
WK49	6-Dec-09	12-Dec-09	15-Dec-09
WK50	13-Dec-09	19-Dec-09	22-Dec-09
WK51	20-Dec-09	26-Dec-09	29-Dec-09
WK52	27-Dec-09	2-Jan-10	5-Jan-10
WK1	3-Jan-10	9-Jan-10	12-Jan-10
WK2	10-Jan-10	16-Jan-10	19-Jan-10
WK3	17-Jan-10	23-Jan-10	26-Jan-10
WK4	24-Jan-10	30-Jan-10	2-Feb-10
WK5	31-Jan-10	6-Feb-10	9-Feb-10
WK6	7-Feb-10	13-Feb-10	16-Feb-10
WK7	14-Feb-10	20-Feb-10	23-Feb-10
WK8	21-Feb-10	27-Feb-10	2-Mar-10
WK9	28-Feb-10	6-Mar-10	9-Mar-10
WK10	7-Mar-10	13-Mar-10	16-Mar-10
WK11	14-Mar-10	20-Mar-10	23-Mar-10
WK12	21-Mar-10	27-Mar-10	30-Mar-10
WK13	28-Mar-10	3-Apr-10	6-Apr-10
WK14	4-Apr-10	10-Apr-10	13-Apr-10
WK15	11-Apr-10	17-Apr-10	20-Apr-10
WK16	18-Apr-10	24-Apr-10	27-Apr-10
WK17	25-Apr-10	1-May-10	4-May-10
WK18	2-May-10	8-May-10	11-May-10
WK19	9-May-10	15-May-10	18-May-10
WK20	16-May-10	22-May-10	25-May-10
WK21	23-May-10	29-May-10	1-Jun-10
WK22	30-May-10	5-Jun-10	8-Jun-10
WK23	6-Jun-10	12-Jun-10	15-Jun-10
WK24	13-Jun-10	19-Jun-10	22-Jun-10
WK25	20-Jun-10	26-Jun-10	29-Jun-10
WK26	27-Jun-10	3-Jul-10	6-Jul-10

WEEKS	START	END	Appendix C Submission to MOHLTC
WK27	4-Jul-10	10-Jul-10	13-Jul-10
WK28	11-Jul-10	17-Jul-10	20-Jul-10
WK29	18-Jul-10	24-Jul-10	27-Jul-10
WK30	25-Jul-10	31-Jul-10	3-Aug-10
WK31	1-Aug-10	7-Aug-10	10-Aug-10
WK32	8-Aug-10	14-Aug-10	17-Aug-10
WK33	15-Aug-10	21-Aug-10	24-Aug-10
WK34	22-Aug-10	28-Aug-10	31-Aug-10
WK35	29-Aug-10	4-Sep-10	7-Sep-10

APPENDIX - I

Definitions for influenza activity levels:

No Data: No activity report corresponding to the surveillance week was received at the Ministry of Health and Long-Term Care Call Centre by the Tuesday (at 4 p.m.) following the end of the surveillance period.

No Activity: **No laboratory-confirmed* influenza and NO outbreaks detected** within the health unit/ influenza surveillance area, within the prior week, although sporadically occurring ILI may or may not be present.†

Sporadic: Sporadically (infrequently) occurring **ILI and at least one lab-confirmed influenza* case with NO outbreaks** detected within the health unit area.†

Localized: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools§ and work sites, or laboratory-confirmed influenza in residential institutions occurring in < 50% of the health unit. Outbreaks affect a single and/or adjacent geographic area within the health unit jurisdiction, e.g. outbreaks in a nursing home and a school in close proximity to each other.†

Widespread: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools and work sites, or laboratory-confirmed influenza in residential institutions occurring in > 50% of the health unit. Outbreaks affect multiple and non-adjacent geographic areas within the health unit jurisdiction, such as two or more regions of the health unit, two or more municipalities, two or more electoral wards, etc.†

* Confirmation of influenza within the surveillance region at any time within the prior week

† Sub-regions within the province or territory as defined by the provincial/territorial epidemiologist

§Health units have been requested to consider laboratory confirmed pH1N1 outbreaks in camps in their region when evaluating ILI activity levels

Influenza-Like Illness (ILI) Definitions:

A) ILI in the general population:

Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which could be due to influenza virus. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

B) ILI/Influenza outbreaks:

Schools and work sites: greater than 10% absenteeism on any day, most likely due to ILI.

Residential institutions: two or more cases of ILI within a seven-day period, **including at least one laboratory confirmed case.**

Current Provincial Surveillance Case Definition for pH1N1 (as of May 5, 2009):

Confirmed

Person with or without Influenza-like illness¹ and

Laboratory confirmation of swine influenza A (H1N1) virus infection by one or more of the following tests:

- RT-PCR with genotyping of H1 and/or N1 swine influenza virus
- Viral culture with strain typing
- Four-fold rise in swine influenza A(H1N1) virus specific antibodies by serology testing

¹Influenza-like illness: Acute onset of respiratory illness with fever AND one or more of the following - cough, sore throat, arthralgia, myalgia, prostration, or malaise. In cases under 5 or 65 and older fever may not be prominent.